

## COMPARISON TO SANTA CRUZ

To determine the size of Santa Cruz's "Trash Container" I measured its height and width on the Patent Drawings. Since all drawings are typically drawn to a scale, the actual size of the device represented can be determined. The height of the Trash Container on the drawing is three inches; and using a ratio of one inch equals one foot (12 inches) its overall height would be 36 inches and it would be 24 inches square. The height of 36 inches is not unreasonable given that the standard height of kitchen cabinets and free standing kitchen ranges are also 36 inches. Besides, Santa Cruz states, column 1, lines 19 -21, that "most people position their trash containers in a convenient location for easy disposal, such within the kitchen area etc." Based on this scale, complete dimensions were applied to Santa Cruz's drawings to enable the construction of the mock-up. A copy of the drawings with dimensions is attached. Also, to be sure that the mock-ups were constructed to full size, a second version was constructed using a scale of one inch equals 10 inches. This scale is also not unreasonable because quite often a kitchen has a sit down desk which is typically 30 inches high in order for an ordinary chair to be used at the desk. A copy of the drawings of the 30 inch version is also attached. A set of dimensioned drawings for a 24 inch version was also made a copy of which is attached. No mock-up was made of the 24 inch version as experience from the other two can be applied to it as well.

The Santa Cruz mock-ups were constructed using wood and cardboard. The castors on the bottom and the storage compartment for the bags were not defined in the mock-ups; but their overall height was included in the total height. A series of comparison pictures were taken of Santa Cruz's device and the present invention in various settings to more fully define the structural differences. These comparison pictures are described below:

**Picture Number 1** shows what the trash container would look in an average kitchen. It has the "step stool" in the down position which would be required if one were to climb up the steps to use it to put on or remove one's footwear. Note that the height is the same as the kitchen cabinets, 36 inches. A "Yard Stick" is taped to the model to indicate the vertical height in all the pictures.

**Picture Number 2** shows the trash container/step stool between the standard height cabinets and a sit down kitchen desk, note the six inch difference between the two types of cabinets. This is still quite a height to climb to sit down and put on or remove your footwear.

**Picture Number 3** shows the trash container/step stool against set of stairs in an average residential house stairway. Note that the top tread/step on the trash container/step stool is higher than the second step/tread in the stairway. Also note that the width of the tread/steps on the trash container/stool are considerably less than on the stairs.

**Picture Number 4** shows how the trash container/step stool would look in a typical bedroom. Also shown is small ladder/stool showing the typical pyramid shape in contrast to the vertical shape of the steps on the trash container/step stool. Note that ladder/stool requires two steps to reach the top while the trash container/step stool uses only one very large step to reach the top. The top step is 20 inches above the floor; which as stated before is higher than two steps in an average residential staircase. This would be quite a task for someone with mobility problems. The ladder/stool in the picture has vertical height of 22 inches. Also note the position of the handles on the side of the trash container/step stool as these are the only appendages for one to grasp when climbing up the steps.

**Picture Number 5** shows how a person's feet would be placed when beginning to climb up the steps to sit on the top of the trash container/step stool to use it in assisting in the footwear putting on or taking off process. The gray covering on the steps and top simulate the "rubberized material (30) column 3, line 11" in the disclosure.

**Picture Number 6** show the position of the feet after the first step is taken by placing the left foot on the lower step.

**Picture Number 7** shows the position of the feet after placing the right foot on the top step. Remember that the top step is 20 inches above the floor and that the only true appendages to grasp are on the side of trash container/step stool. To utilize the handles on the sides to stabilize oneself, one would have to lean forward and bend over with their arms spread wide.

**Picture Number 8** shows the position of the feet after the left foot has also been placed on the top step. The same problem of stabilization exists on this move; but more importantly lifting the left foot is not easy because one can not simply lift it vertically because the upper step is directly over the lower one. Instead, lifting it would require the foot to be moved backward before it can be lifted upward which means that all the person's weight would be on the right foot which is 20 inches above the floor and the only handles are on the side.

Now comes the big problem, both feet are on the top step facing forward. Note that for many adults their feet can hardly fit on the platform; especially with their shoes on. In order to sit down on the top it is necessary to turn around on a small platform only 10 inches deep and 14 inches wide without any available hand holds while standing 20 inches above the floor. And, remember that the major premise of the present invention is to "assist seniors and other persons with limited mobility problems in their knees, legs or back". I don't think that "one could easily sit atop the lid of the Santa Cruz 'receptacle' in order to assist in the act of putting on and taking off their shoes". To turn around so as to be able to sit on the top would be a chore for most able bodied people or the least an inconvenience that would discourage most people from even using Santa Cruz's Combination Trash Receptacle and Step Stool for the express purpose of removing and putting on footwear.

**Pictures Number 9** show a comparison between a modern chair, the trash container/step stool and the present invention. You can see that the seat on the present invention is lower and deeper

than any other the others. It also is the only one that includes a footrest. One could also theoretically sit on the top step of the trash container/step stool to put on or remove one's footwear, but because the step is only 10 inches deep, and 20 inches above the floor it wouldn't be very comfortable. Besides, since its height is about the same as that a normal chair it wouldn't be practical to move the trash container/step stool to the bedroom just to put on one's footwear. Or, to go into the kitchen when more than likely other seating surfaces are available.

**Picture Number 10** shows the 30 inch version in a kitchen between a 36 inch cabinet and a 30 inch kitchen desk.

**Picture Number 11** shows the 30 inch version against a stairway. Note that the top step is slightly higher than the second step of the stairway; while the lower step is lower than the first step of the stairway.

**Picture Number 12** shows how the 30 inch version of the trash container/step stool would look in a typical bedroom. Also shown is the small ladder/stool again showing the typical pyramid shape in contrast to the vertical shape of the steps on the trash container/step stool.

**Picture Number 13** shows the 30 inch version in a typical bedroom with the present invention. The same problems described for climbing the stool to sit on the top with the 36 inch version remain for the 30 inch version. Note from the drawings that the top step would be only 8 1/2 inches deep and 12 inches wide, much smaller than before. Making a turnaround with this lack of surface area and no handles to easily grasp would be difficult.

## **SUMMARY OF DIFFERENCES**

1. Santa Cruz's device is first and foremost a "trash container" with some steps added to "allow for quick access to items located in high cabinets or the like ( see col.1 lines 23-24)." As illustrated in the pictures and the discussion above, climbing up to sit on the top would be very

difficult for the intended population of seniors and others with mobility problems. Besides, assuming one would sit on the top with their feet on the top step it would not be much better than sitting on a low chair since the vertical height from the top to the top step is 16 inches! And, while sitting on the top, the top step is basically equivalent to the **floor as there is no footrest**.

2. On the 30 inch version, if one were tall enough, they conceivably could stand with their back to the trash container straddle the steps, place their hands on the top and hop onto the top to sit down on it. This of course would be silly because sitting on an average chair with your feet on the floor would be simpler and one would not have to buy a trash container.
3. To use Santa Cruz's device, one would have to either move it where the footwear is located or carry the footwear to it. Either way, the only convenient place to store the footwear prior to putting it on would be on the top as the steps are necessary for the climb. Then, after positioning the container where one wants it, the castors must be locked and the steps unlocked and pulled down. Contrast this to having the present invention in your bedroom or dressing area; where you simply carry your footwear to it, set them on the floor and sit down and begin the process.
4. The trash container is **not** the type of furniture that would fit in an average bedroom or dressing area. The present invention is designed to fit in any bedroom, dressing room, bathroom or even a living room or family room.
5. The trash container, even though it has wheels, is not easily portable; whereas, the present invention is very portable. It's construction which is similar to a normal chair makes it very light and easy to move without any strain or difficulty.
6. The trash container would cost considerably more than the present invention and very few people in the population for which the present invention was designed would even consider purchasing it for the purpose of putting on or removing footwear.

7. Even though the mock-up didn't include a cavity for the steps to be folded into or the pivot points for the steps to be unfolded, the design of the steps clearly shows that they have only two positions, fully opened as shown in the mock-up or fully closed. Placement of the pivot points (24) and of support (18) with pivot points (20) precludes any upward adjustment.

8. As far as the 24 inch version is concerned, most of the previous comments apply. A person of above average height can easily sit on the top. However, since the steps must be let down to use the top step it would require one to spread their legs to avoid them which is awkward at best. Also, since the height is between 2 to 4 inches higher than the average chair, it may be difficult for those persons below average height to sit without hopping up on the top and the targeted population for its use are normally not into hopping. As mentioned before, there is no place for the footwear as the top is only 16 inches square. The top step is considerably smaller on this version, only 6 1/2 by 10 inches hardly deep enough for the average adult shoe.

8. The comparison pictures clearly show that Santa Cruz's Trash Receptacle and Step Stool does not show relevant prior art vis a vis the present invention.

## **COMPARISON TO KNEIER**

As stated before, Kneier's submission includes dimensions of his **Chair with Attached Footrest** and all the dimensions are highlighted in the attached copy of his submission. On page 2 (0031) the seat is 12 x 16 inches and the footrest is 9 x 16 inches and is 8 inches below the seat. The preferred length of the side panels is 21 inches. A base to support the side panels is not defined, however it too would be 21 inches long. An upper face is defined to be 8 x 16 inches. The lower face is defined to be 13 x 16 and be one inch above the floor, which means that the base must be 1 inch in height. In (0034) the preferred overall height is stated as 21.5 inches. However, on page 4 (0049) the overall height is stated to be best when it is 22 inches high. The latter number, 22 inches, appears to be correct when adding the height of both the upper face [8"] and the lower face (13") and the one inch above the floor, the total is 22 inches. On page 3

(0044) "FIG. 5 shows another embodiment with the addition of an upper back 56 to making the **chair** 11 have more of the look and function of a conventional **chair**." The size of the back is a rectangle 16 x 21 inches. These dimensions have been added to a copy of Kneier's drawings.

Kneier states on page 3 (0047) "In the simplest construction, the **chair** with the attached footrest 11 may be constructed from sheets of plywood or other suitable sheet goods material such as oriented strand board or medium density fiberboard or wood." The mock-up was constructed of  $\frac{1}{2}$  inch MDF (medium density fiberboard) and put together with screws. A one inch "leg" was added to the panels to simulate the 1 inch base needed to reach the 22 inch preferred height. A series of comparison pictures were taken showing Kneier's **chair** against the present invention.

**Picture Number 14** shows a mock-up of Kneier's **chair** set against a set of stairs in an average residential house stairway. Note that the footrest portion of his **chair** is lower than the second step/tread in the stairway and the seat is higher. Also note the 1 inch legs to simulate the "base".

**Picture Number 15** shows the present invention set against the same stairway. Note that the footrest on the present invention is the same height as the first step and the seat is the same height as the second step. The black padding makes it appear to be higher; but it is not.

**Picture Number 16** is another view of the present invention against the stairway. It shows the relative depth of both the footrest and the seat. There is also a clear view of some of the fasteners that allow the present invention to be made and shipped unassembled and easily assembled by the customers.

**Picture Number 17** is a view which shows the relative height of both the seat and footrest of Kneier's **chair** and the present invention.

**Picture Number 18** is a view which shows the differences between depth of both the seat and footrest of the present invention as compared against Kneier's **chair**.

**Picture Number 19** is a view showing a modern chair, Kneier's **chair** and the present invention. This view clearly demonstrates the height differences between the three. Note that the seat height of the present invention is lower than the other two and the footrest is lower than that of Kneier's **Chair with Attached Footrest**.

**Picture Number 20** is a view similar to Picture 19 but with a view of Kneier's **chair** with a back as shown in FIG. 5 where he "shows another embodiment with the addition of an upper back '56' to making the **chair** '11' have more of the look and function of a conventional **chair**."

**Picture Number 21** is a view of identical twin girls five feet four inches tall, one sitting on Kneier's **chair** and the other sitting on the present invention. Note the difference in the height of their feet above the floor when on the two footrests.

**Picture Numbers 22 and 23** are two views of the same girls, one sitting on the seat of Kneier's **chair** and the other on the seat of the present invention attempting to place their feet flat on the floor while in sitting. Note that the girl on Kneier's **chair** cannot place her feet flat on the floor while sitting; while the other girl can do it easily. To illustrate that they are indeed identical they have reversed positions. As can be seen in the pictures, the height of the seat and the position of the footrest on Kneier's **chair** causes the girl's legs to be moved more forward instead of downward preventing them from resting on the floor.

**Picture Number 24** is a view of the present invention in its unassembled form. Note that the construction of Kneier's **chair** as described in his submission makes no mention of it being built in a manner to allow for shipment in an unassembled form.

## **SUMMARY OF DIFFERENCES**

1. Kneier's device is first and foremost a chair. Kneier himself defines it as a **chair with an attached footrest**. He points out that "that the seat be located at a height from the floor that is

higher than a conventional chair (0034)”. Picture 19 clearly shows it to be higher than a normal chair and higher than the present invention.

2. The footrest on Kneier's **chair** is also higher than on the present invention as shown on many of the pictures. Claim 3 in the present invention's disclosure states 'that the seat and footrest's vertical heights are positioned to emulate the vertical rise of two normal steps in a staircase'. This is illustrated in pictures 15 and 16. Picture number 14 clearly shows that Kneier's **chair's** seat and footrest are both higher than two normal steps of a staircase. For person's with limited mobility in the legs or back, lifting ones legs high can be extremely difficult. The present invention's footrest is considerably lower than Kneier's.
3. The width of Kreier's **chair** as shown in FIGS. 1, 2, 3, 4 and 5 are all stated as 16 inches; which can be seen to be narrower than the present invention and a modern chair in pictures 19 thru 23. Seat width is very important when one is lifting their legs off the floor as the width of the sitting surface is important in maintaining stability.
4. The seat depth on Kneier is much less than the present invention whereas claim 4 states "depth of said seat is to emulate the depth of two normal stair threads found in a normal stairway" as shown in picture16. A further view of the differences in seat depth is shown in pictures 17 and 18. A depth of only 12 inches is not only uncomfortable but also precarious for anyone with the previously stated mobility problems. Adding the back as stated in FIG 5 and as shown in picture number 20 could add some degree of comfort, but the combination of both the lack of width and depth would still make it precarious as leaning against the back causes one's center of gravity to shift higher.
5. The seat height on Kneier is such that for people of average height or below they would not be able to place their legs flat on the floor which means their stability may be comprised when one foot is lifted onto the footrest. This is clearly demonstrated in pictures 22 and 23. Whereas the seat height on the present invention allows one to have both feet on the floor and would not

require as much stretching to reach their shoes on the floor. Also, one could easily use the floor instead of the footrest to put on or remove their footwear as the it is within easy reach as compared to Kneier where being higher than normal **chair** would make such a process an extreme stretch.

6. The panel construction method as stated (0031) using MDF (0047) results in Kneier's **chair** being considerably heavier than the present invention. Kneier's **chair** weighs 21 pounds without the back and 27 pounds with it. The present invention weighs only 12 pounds!

7. Addition of the storage areas as shown in FIGs. 3 and 4 will make the Kneier's **chair** look more like a set of shelves (30,32) or a filing cabinet and will increase the weight making it less portable and increase its cost.

8. The panel construction of Kneier's **chair** as shown in the pictures is exactly as stated in his disclosure and is monolithic; with no appendages to allow for easy grasping when moving it from place to place. This is in contrast with the present invention which is constructed using the typical frame method, as stated in claim 2. This results in overall lighter weight and in many surfaces to grip; which as stated in the disclosure 'should be light enough to be easily portable'.

9. All the pictures on the present invention show a padded seat and footrest. Kneier makes no mention of padding in his disclosure whereas claim number 5 for the present invention states "said footrest and said seat may be have rounded edges or may be padded for comfort".

10. Kneier makes no mention of his **chair** being manufactured in such a manner to allow it to be shipped in an unassembled form and easily assembled by the customer as stated in the claim number 7 for the present invention.. Picture number 24 shows the present invention completely disassembled with the necessary fasteners to assemble it in a pile next to it. Kneier's **chair** would have to be shipped completely assembled which would result in higher shipping cost and an ultimate higher cost for the customer.